

WHAT IS CLAIMED IS:

1. A method for treating a host infected with RSV comprising administering an anti-RSV effective amount of a compound of Formula I:



or a pharmaceutically acceptable salt or prodrug thereof,

wherein:

R₁ is selected from the group consisting of -NHC(O)Y, where Y is C₁-C₂₂ alkyl, C₂-C₂₂ alkenyl, and C₂-C₂₂ alkynyl;

R₂ is selected from the group consisting of -OX, where X is C₁-C₂₂ alkyl, C₂-C₂₂ alkenyl, C₂-C₂₂ alkynyl; and

R₃ is phosphocholine.

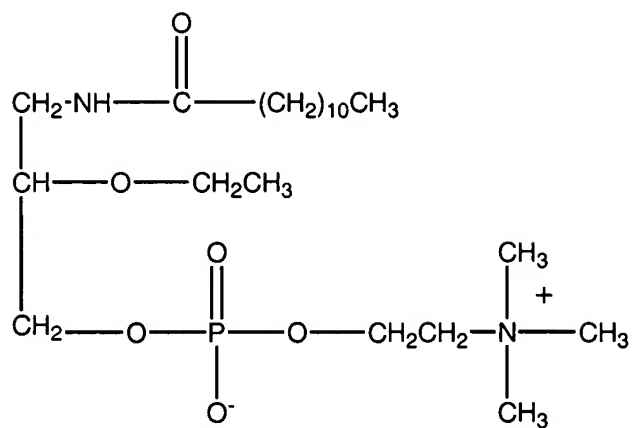
2. The method of claim 1 wherein Y and X are independently C₁-C₁₄ alkyl, C₂-C₁₄ alkenyl, or C₂-C₁₄ alkynyl.

3. The method of claim 1 wherein:

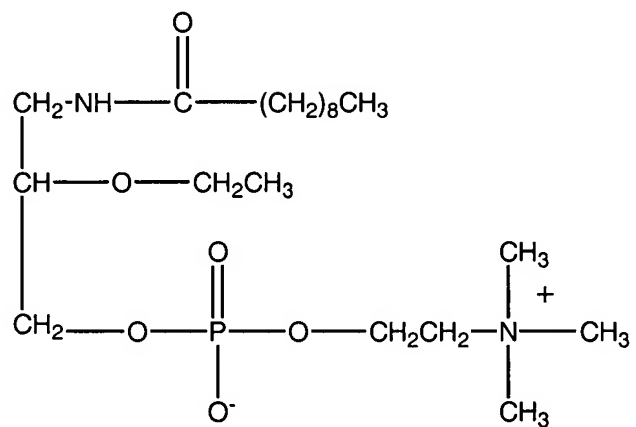
Y is -C₁₀H₂₁; and

X is -CH₂CH₃, -CH₂CH₂CH₃, -CH₂CH₂CH₂CH₃, or -C₁₀H₂₁.

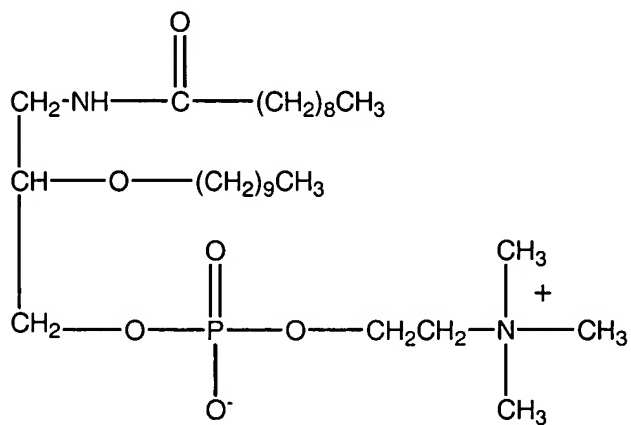
4. The method of claim 1 wherein Y is -C₁₁H₂₃ and X is C₁-C₅ alkyl.
5. The method of claim 1 wherein Y is -C₉H₁₉ and X is C₉-C₁₁ alkyl.
6. The method of claim 1, wherein the compound is



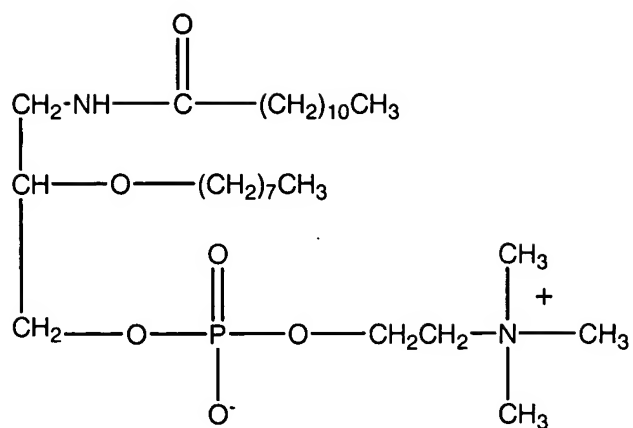
3-dodecanamido-2-ethoxypropyl-1-phosphocholine,



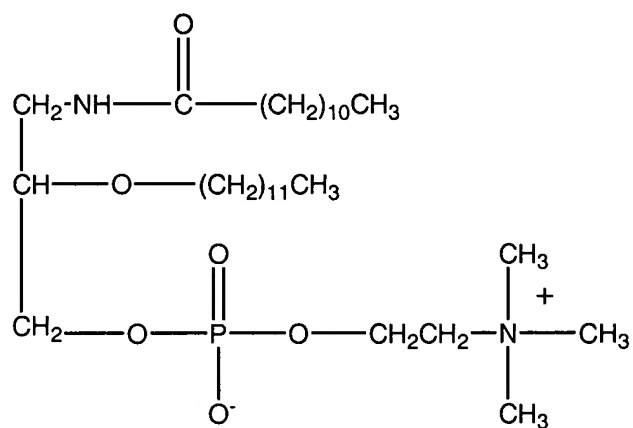
3-decanamido-2-ethoxypropyl-1-phosphocholine,



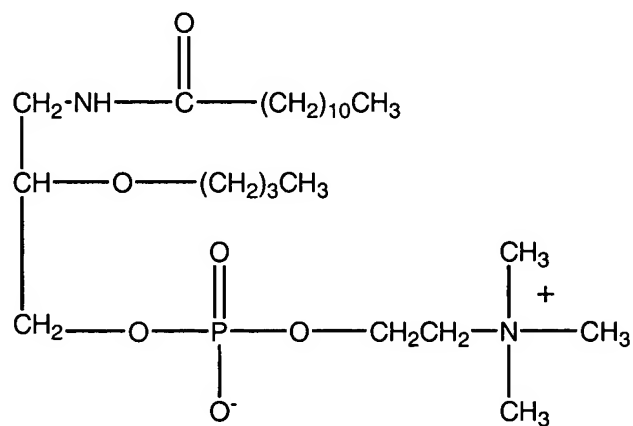
3-decanamido-2-decyloxypropyl-1-phosphocholine,



3-dodecanamido-2-octyloxypropyl-1-phosphocholine,



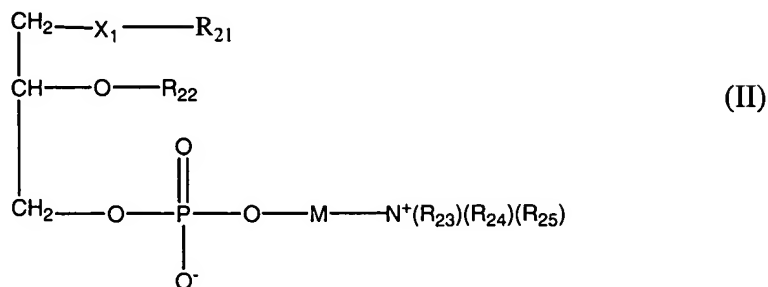
3-dodecanamido-2-dodecyloxypropyl-1-phosphocholine, or



3-dodecanamido-2-butyloxy-1-phosphocholine; or a combination thereof.

7. The method of claim 1 wherein the host is a mammal.

8. The method of claim 1 wherein the host is a human.
9. A method for treating a host infected with RSV comprising administering an anti-RSV effective amount of a compound of Formula II:



or a pharmaceutically acceptable salt or prodrugs thereof,

wherein:

M is C₂-C₄ alkyl;

X₁ is selected from the group consisting of -S-, -O-, -NH-, and -NHC(O)-;

R₂₁ is selected from the group consisting of C₁-C₂₀ straight chain alkyl, C₂-C₂₀ straight chain alkylene containing not more than four double bonds, and aryl;

R₂₂ is selected from the group consisting of C₁-C₂₀ straight chain alkyl, C₂-C₂₀ straight chain alkylene containing not more than four double bonds, and aryl; and

R₂₃, R₂₄, and R₂₅ are each independently selected from the group consisting of hydrogen, methyl, ethyl, propyl, and isopropyl.

10. The method of claim 9 wherein

M is -CH₂CH₂-;

X₁ is -NHC(O)-;

R₂₁ is selected from the group consisting of a C₁-C₁₆ straight chain alkyl and C₂-C₁₆ straight chain alkylene containing not more than one double bond;

R₂₂ is selected from the group consisting of a C₁-C₁₆ straight chain alkyl and C₂-C₁₆ straight chain alkylene containing not more than one double bond; and

R₂₃, R₂₄, and R₂₅ are each independently hydrogen or methyl.

11. The method of claim 9 wherein

R₂₁ is selected from the group consisting of C₁-C₁₆ straight chain alkyl and C₂-C₁₆ straight chain alkylene containing not more than one double bond; and

R₂₂ is selected from the group consisting of C₁-C₅ straight chain alkyl and C₂-C₅ straight chain alkylene containing not more than one double bond.

12. The method of claim 11 wherein R₂₁ is C₉-C₁₂ alkyl and R₂₂ is C₁-C₁₂ alkyl.

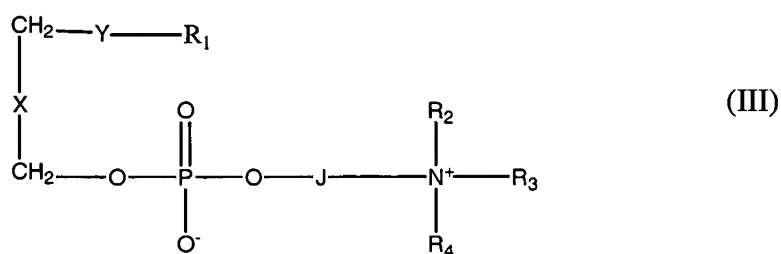
13. The method of claim 11 wherein R₂₁ is C₉-C₁₂ alkyl and R₂₂ is C₁-C₅ alkyl.

14. The method of claim 11 wherein R₂₁ is C₉-C₁₂ alkyl and R₂₂ is C₈-C₁₂ alkyl.

15. The method of claim 9 wherein the host comprises a mammal.

16. The method of claim 9 wherein the host comprises a human.

17. A method for treating a host infected with RSV comprising administering an anti-RSV effective amount of a compound of Formula III:



or a pharmaceutically acceptable salt or prodrug thereof,

wherein:

Y is selected from the group consisting of -S-, -O-, -NH-, -N(CH₃)-, -NHC(O)-, and -N(CH₃)C(O)-;

R_1 is selected from the group consisting of C_1 - C_{18} alkyl, C_2 - C_{18} alkenyl, C_2 - C_{18} alkynyl, and aryl;

X is a covalent bond or methylene that is optionally substituted with a hydroxyl, C_1 - C_{20} alkyl, -O-(C_1 - C_{20} alkyl), -S-(C_1 - C_{20} alkyl), -C(O)N(C_1 - C_{20} alkyl), C_2 - C_{20} alkenyl, -O-(C_2 - C_{20} alkenyl), -S-(C_2 - C_{20} alkenyl), -C(O)N(C_2 - C_{20} alkenyl), C_2 - C_{20} alkynyl, -O-(C_2 - C_{20} alkynyl), -S-(C_2 - C_{20} alkynyl), or -C(O)N(C_2 - C_{20} alkynyl);

J is a C_1 - C_4 alkyl optionally substituted from one to three times with methyl or ethyl; and

R_2 , R_3 , and R_4 are independently hydrogen or C_1 - C_3 alkyl.

18. The method of claim 17 wherein:

Y is -NHC(O)-;

R_1 is C_6 - C_{18} alkyl;

X is -C(H)(O- C_1 - C_{18} alkyl)- or -C(H)(O- C_1 - C_{18} alkenyl)-;

J is -CH₂CH₂-; and

R_2 , R_3 , and R_4 are each methyl.

19. The method of claim 18 wherein R_1 is -C₁₁H₂₃ and X is -C(H)(O- C_1 -C₅ alkyl)- or -C(H)(O- C_1 -C₅ alkenyl)-

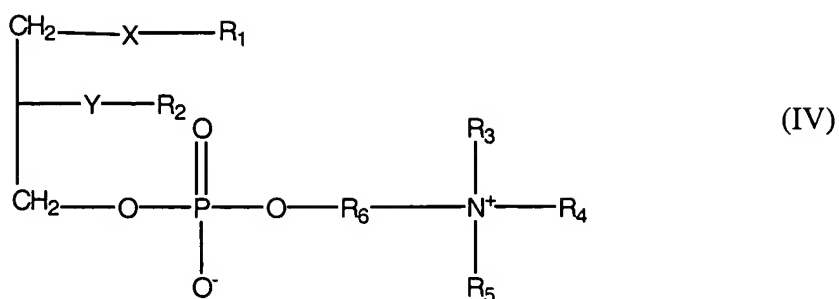
20. The method of claim 18 wherein R_1 is -C₉H₁₉ and X is -C(H)(OC₂H₅)-.

21. The method of claim 17 wherein R_1 is -C₉H₁₉ and X is -C(H)(OC₁₀H₂₁)-.

22. The method of claim 17 wherein the host comprises a mammal.

23. The method of claim 17 wherein the host comprises a human.

24. A method for treating a host infected with RSV comprising administering an anti-RSV effective amount of a compound of Formula IV:



or a pharmaceutically acceptable salt or prodrug thereof,

wherein:

R₁ is selected from the group consisting of C₁-C₁₈ alkyl, C₂-C₁₈ alkenyl, and C₂-C₁₈ alkynyl that is optionally substituted from 1 to 5 times with -OH, -COOH, oxo, amino, or aryl;

X is selected from the group consisting of -NHC(O)-, -N(CH₃)C(O)-, -C(O)NH-, -C(O)N(CH₃)-, -S-, -S(O)-, -(SO₂)-, -O-, -NH-, and -N(CH₃)-;

R₂ is selected from the group consisting of C₁-C₁₄ alkyl, C₂-C₁₄ alkenyl, and C₂-C₁₄ alkynyl that is optionally substituted from 1 to 5 times with -OH, -COOH, oxo, amino, or aryl;

Y is selected from the group consisting of -NHC(O)-, -N(CH₃)C(O)-, -C(O)NH-, -C(O)N(CH₃)-, -S-, -S(O)-, -(SO₂)-, -O-, -NH-, -N(CH₃)-, and -OC(O)-;

R₆ is selected from the group consisting of C₂-C₆ alkyl; C₂-C₆ alkenyl, and C₂-C₆ alkynyl;
and

R₃, R₄, and R₅ are independently methyl or ethyl, or R₃ and R₄ together form an aliphatic or heterocyclic ring having five or six ring atoms and R₅ is methyl or ethyl.

25. The method of claim 24 wherein:

R₂ is C₁-C₁₄ alkyl, C₂-C₁₄ alkenyl, or C₂-C₁₄ alkynyl;

R₆ is -CH₂CH₂-; and

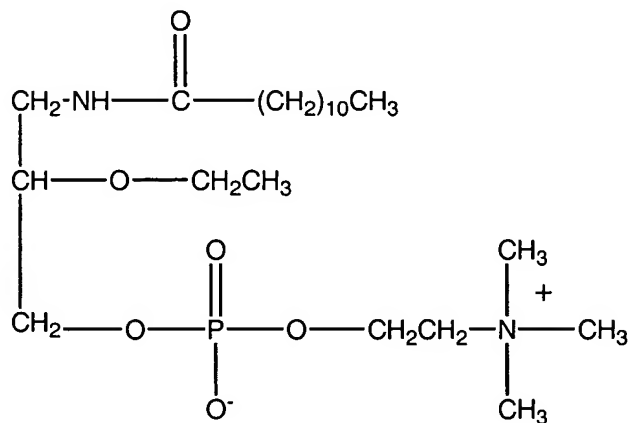
R₃, R₄, and R₅ are each independently CH₃.

26. The method of claim 25 wherein R₂ is C₁-C₅ alkyl or C₂-C₅ alkenyl.
27. The method of claim 25 wherein R₁ is C₈-C₁₂ alkyl and R₂ is C₁-C₁₂ alkyl.
28. The method of claim 25 wherein R₁ is C₈-C₁₂ alkyl and R₂ is C₁-C₅ alkyl.
29. The method of claim 25 wherein R₁ is C₈-C₁₂ alkyl and R₂ is C₈-C₁₂ alkyl
30. The method of claim 27 wherein

X is -NHC(O), -N(CH₃)C(O)-, -C(O)NH-, -C(O)N(CH₃); and

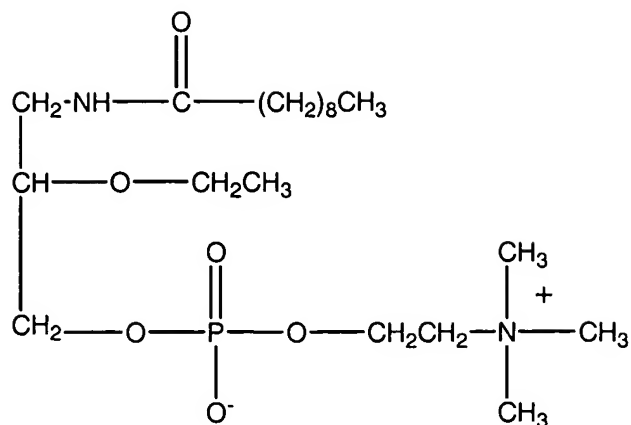
Y is -O-, -NH-, or -N(CH₃)-

31. The method of claim 24 wherein the host comprises a mammal.
32. The method of claim 24 wherein the host comprises a human.
33. The method of claim 24 wherein the compound comprises:



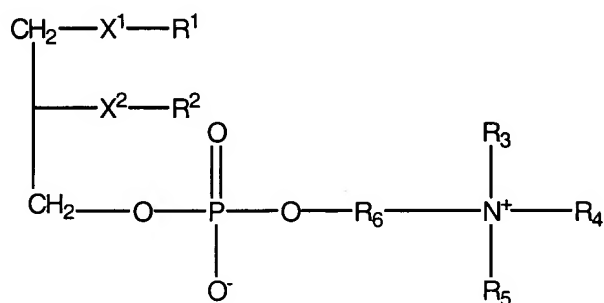
3-dodecanamido-2-ethoxypropyl-1-phosphocholine.

34. The method of claim 24 wherein the compound comprises:



3-decanamido-2-ethoxypropyl-1-phosphocholine.

35. A method for treating a host infected with RSV comprising administering an anti-RSV effective amount of a compound of Formula AA-1:



(AA-1)

or a pharmaceutically acceptable salt or prodrug thereof,

wherein:

X^1 is -NHC(O)- ;

X^2 is -O- ;

R^1 is $\text{-C}_1\text{-C}_{22}$ alkyl;

R^2 is $\text{-C}_1\text{-C}_{22}$ alkyl;

R^6 is $\text{-CH}_2\text{CH}_2\text{-}$; and

R^3 , R^4 , and R^5 are methyl.

36. The method of claim 35, wherein

R^1 is $-\text{CH}_3$, $-\text{CH}_2\text{CH}_3$, $-\text{CH}_2\text{CH}_2\text{CH}_3$, $-\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$, $-\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$, $-(\text{CH}_2)_5\text{CH}_3$, $-(\text{CH}_2)_6\text{CH}_3$, $-(\text{CH}_2)_7\text{CH}_3$, $-(\text{CH}_2)_8\text{CH}_3$, $-(\text{CH}_2)_9\text{CH}_3$, $-(\text{CH}_2)_{10}\text{CH}_3$, $-(\text{CH}_2)_{11}\text{CH}_3$, $-(\text{CH}_2)_{12}\text{CH}_3$ or $-(\text{CH}_2)_{13}\text{CH}_3$; and

R^2 is $-\text{CH}_3$, $-\text{CH}_2\text{CH}_3$, $-\text{CH}_2\text{CH}_2\text{CH}_3$, $-\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$, $-\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$, $-(\text{CH}_2)_5\text{CH}_3$, $-(\text{CH}_2)_6\text{CH}_3$, $-(\text{CH}_2)_7\text{CH}_3$, $-(\text{CH}_2)_8\text{CH}_3$, $-(\text{CH}_2)_9\text{CH}_3$, $-(\text{CH}_2)_{10}\text{CH}_3$, $-(\text{CH}_2)_{11}\text{CH}_3$, $-(\text{CH}_2)_{12}\text{CH}_3$ or $-(\text{CH}_2)_{13}\text{CH}_3$.

37. The method of claim 36, wherein

R^1 is $-(\text{CH}_2)_8\text{CH}_3$, $-(\text{CH}_2)_9\text{CH}_3$, $-(\text{CH}_2)_{10}\text{CH}_3$, $-(\text{CH}_2)_{11}\text{CH}_3$; $-(\text{CH}_2)_{12}\text{CH}_3$, or $-(\text{CH}_2)_{13}\text{CH}_3$;

and

R^2 is CH_3 , $-\text{CH}_2\text{CH}_3$, $-\text{CH}_2\text{CH}_2\text{CH}_3$, $-\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$, $-\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$, $-(\text{CH}_2)_5\text{CH}_3$, $-(\text{CH}_2)_6\text{CH}_3$, or $-(\text{CH}_2)_7\text{CH}_3$.

38. The method of claim 36, wherein

R^1 is $-(\text{CH}_2)_5\text{CH}_3$, $-(\text{CH}_2)_6\text{CH}_3$, $-(\text{CH}_2)_7\text{CH}_3$, $-(\text{CH}_2)_8\text{CH}_3$, $-(\text{CH}_2)_9\text{CH}_3$, $-(\text{CH}_2)_{10}\text{CH}_3$, $-(\text{CH}_2)_{11}\text{CH}_3$, or $-(\text{CH}_2)_{12}\text{CH}_3$; and

R^2 is $-(\text{CH}_2)_6\text{CH}_3$, $-(\text{CH}_2)_7\text{CH}_3$, $-(\text{CH}_2)_8\text{CH}_3$, $-(\text{CH}_2)_9\text{CH}_3$, $-(\text{CH}_2)_{10}\text{CH}_3$, $-(\text{CH}_2)_{11}\text{CH}_3$, $-(\text{CH}_2)_{12}\text{CH}_3$, or $-(\text{CH}_2)_{13}\text{CH}_3$.

39. The method of claim 1, wherein the administering is orally, intravenously, parentally, intradermally, subcutaneously, topically, or by inhalation.